Robotic double renal transplantation: first experience worldwide

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Introduction

Since 1997 40 double grafts were performed, over 879 transplantation procedures since 1989, in the Urology ward of our institution. In 16 years of experience the technique having as a goal better outcomes for the patients. Until 2006 the performed incision was a "generous" Pfannestiel, at a second stage two small parainguinal incisions were performed. The 30th of July 2013 the "Robotic Age" started for the double renal transplantation when the fifth patient transplanted with the robotic technique received two grafts.
Our objective is to present this case in a two-month follow up.

Technique development

In order to promptly gain experience and reach efficiency with the *da Vinci® Surgical System*, the equip has sought collaborations with Prof O.De Cobelli (European Institute of Oncology, Milan-Italy), Prof J. Hubert (Centre Hospitalier Universitaire de Nancy-France), Prof E. Benedetti (Illinois University, Chicago-USA), and has visited Milan, Nancy and Chicago for robotic training.

Case Report

The patient is 63 years old Sardinian male with end stage renal disease, BMI 23.8, hypertension and diabetes controlled by pharmacological therapy and ASA score II. The surgical time have been 240 minutes, 13 hours of cold ischemia (CI) for the right kidney, 16 hours of CI for the left kidney, no intra- and post-operative blood supplies. The death-donor was 70 years old male, the cause of death was a stroke (CVA). The resistivity index (RI) in renal Doppler sonography was 0,68 for the right kidney and 0,70 for the left one, no dialysis has been required and no further complications have been observed. The serum creatinine value after two months has been 1,87 mg/dl with a satisfying decreasing trend. According to the Manchester scar scale the patient has scored 10 for the aesthetic satisfaction related to the scar (5<*x*>18).

Discussion

According to our experience the double robotic renal transplantation had an outcome comparable with the standardised open technique. We need to consider that the robotic surgery guarantees several advantages and some disadvantages. We observed advantages due to the 3D magnification of the *da Vinci® Surgical System* that provides a higher precision in the vascular anastomosis; the intraperitoneal allocation of the grafts leading to no lymphoceles, no arterial kinking, rectilinearization of the vein, better graft protection in the "everyday life"; smaller incisions that make possible a faster mobilization, less request for analgesics, less possibilities to develop surgical site infections and higher aesthetic satisfaction.
The main disadvantages are related to the higher cost of the surgery compared with the open one and the need to make an incision to perform a kidney biopsy.

Conclusion

We conclude that the *da Vinci® Surgical System* allows to perform a double kidney transplantation under optimal operative conditions and guarantees a satisfactory 2 months outcome for the patient. Further experience is needed, but it is reasonable that the double kidney transplantation finally gets to the "Robotic Age". We hope to have the opportunity to discuss this case soon in comparison with other records worldwide.